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Backgrounder

Weakening regulations could reduce their effectiveness by more than half

Federal government being pressured to weaken coal-fired power regulations

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At a Glance

Environment Canada is being pressured to allow existing coal plants in Canada to operate unabated until they reach 50 years of age, while softening future emissions targets. Combined, these backward steps could reduce the overall effectiveness of the regulations by more than half over their first fifteen years.

Pressure to weaken regulations

There are indications that the federal government is being pressured to weaken their draft greenhouse gas (GHG) regulations for coal-fired power plants. The regulations are expected to be finalized this summer and, if the federal government weakens them, they will be less than half as effective as the current draft.

Under the current draft regulations, any unit commissioned after mid-2015 is required to limit its emissions to 375 tonnes of carbon dioxide per gigawatt-hour of electricity generated (t CO_2/GWh) — a standard that effectively requires carbon capture and storage technology (CCS). The standard also applies to existing coal units once they have operated for 45 years.

The draft regulations already do not go far enough to meet the commitments Canada has made to reduce its GHG emissions. For example, they allow many coal units to continue operating for decades without any limit on their emissions when nearer-term solutions are available. The Pembina Institute has submitted an analysis of the draft regulations, including recommendations to improve their effectiveness to Environment Canada[1].

The two most serious ways the regulations could be weakened are:

[1] P.J. Partington, Matt Horne and Tim Weis, *Pembina Institute Comments on Canada's Proposed* 'Reduction of Carbon Dioxide from Coal-fired Generation of Electricity Regulations' (The Pembina Institute, 2011). www.pembina.org/pub/2280

1. *The definition of useful life could be extended from 45 to 50 years.*

Emissions limits only apply to existing units at the end of their useful life. Recent information suggests that the age threshold could be increased from 45 to 50 years in the final version of the regulations. The 5-year extension would be on top of a 2009 concession that extended the definition of useful life from 40 to 45 years — a concession made at the request of electricity sector CEOs, according to Environment Canada documents obtained through an Access to Information request. Older plants are significantly less efficient than newer ones; this would allow the most polluting plants to continue to operate until they are half of a century old.

The 40-year timeline has a strong precedent in that Alberta's Air Emissions Management Framework commits coal-fired units to reduce their criteria air contaminants (such as nitrogen oxides and sulphur dioxide) to the equivalent of a new coal plant at the latest of 40 years, or when their Power Purchase Agreement (PPA) expires.[2] Additionally, the Canadian Electricity Assocation had initially recommended a 40-year capital stock turnover as early as 2002, when coal regulations were first being conceived[3]. The current 45-year end-of-life requirement already creates a disconnect between the Alberta industry obligations for CACs and GHGs.[4] Stretching the end-of-life for federal GHG regulations to 50 years would significantly exacerbate this disconnect.

2. *The performance standard could be changed from 375 to 425 t CO_2/GWh.*

The performance standard represents the maximum allowable emissions rate once the regulations apply to a unit. The draft regulations fix the performance standard at 375 t CO_2/GWh. However, recent information suggests this will be weakened to 425 t CO_2/GWh in the final version, allowing regulated units to emit more.

This concession is being sought in an effort to make future coal emissions congruent with existing technology for combined-cycle natural gas power plants. There is no limiting technical reason why coal plants, using CCS, could not emit at a much lower level. Setting such a standard implies that no improvements over what is already commercially available will be sought for combined cycle natural gas in any future regulations.

Implications of Weakening the Regulations

Changing the end-of-life definition from 45 to 50 years, and the performance standard from 375 to 425 t CO_2/GWh, means the regulations would allow an additional 105 million tonnes of emissions between 2015 and 2030. This would represent more than half (60%) of the reductions Environment Canada expects from the draft regulations over that period (i.e., 175 Mt).

To put this 105 million tonnes of emissions in context, it would have the same GHG implications as putting an additional 1.4 million cars on the road over the same time period. Maxim Power's H.R. Milner expansion also provides a useful comparison given the controversy that has surrounded the company's plan to build a coal-fired unit before the regulations come into force. If they are successful, they would be emitting roughly

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[2] The last PPA expires in the year 2020.

[3] Canadian Electricity Association, *Canadian Electricity and the Environment; Electricity and Climate Change, Towards a Sustainable Future* (2002), 7. www.electricity.ca/media/pdfs/backgrounders/climatechangeE.pdf

[4] Alberta's coal units can operate beyond 40 years, or PPA, only if they use NOx and SO_2 emission credits which have been created through emission reductions elsewhere in Alberta's coal unit fleet. Current estimates indicate that there will be inadequate NOx and SO_2 credits available in that system to enable these units to life extend to 45 years, let alone 50 years.

22 million more tonnes between 2015 and 2030 than if the plant had emissions limits. The GHG implications of weakening the draft regulations' end-of-life age and performance standard would be nearly five times larger.

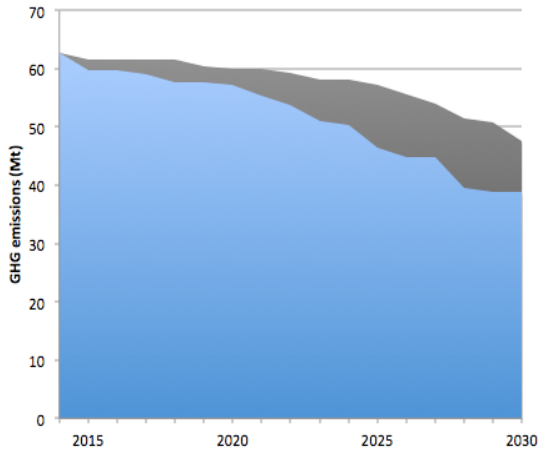
The table below presents the implications for each of the potential changes. The estimated impact of weakening the performance standard assumes existing units meet the performance standard at end-of-life. This is a reasonable assumption if the provinces negotiate equivalency agreements that are based on fleet-wide approaches (such as the agreement Nova Scotia recently announced).

The impact of the potential changes to the draft regulations is shown on the next page.

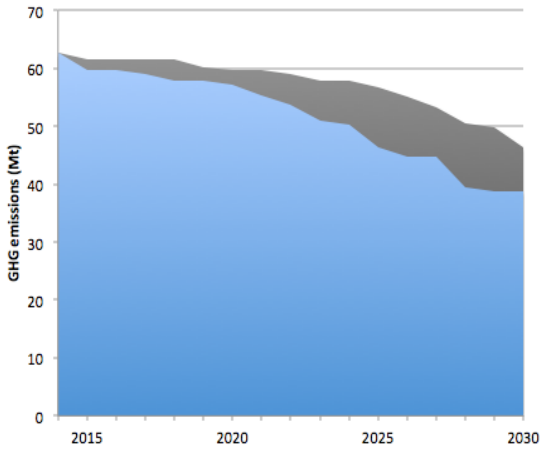
Implications of weakened regulations (cumulative from 2015-2030)

	Projected emissions reductions from draft regulations[5]	Projected increase in emissions relative to draft regulations[6]		
		Extending life to 50 years	Changing standard to 425 t CO_2/GWh	Extending life and changing standard
Alberta	112 Mt	60 Mt	8 Mt	63 Mt
Saskatchewan	41 Mt	22 Mt	4 Mt	24 Mt
New Brunswick[7]	0 Mt	0 Mt	0 Mt	0 Mt
Nova Scotia[8]	22 Mt	16 Mt	2 Mt	17 Mt
National	175 Mt	98 Mt	15 Mt	105 Mt

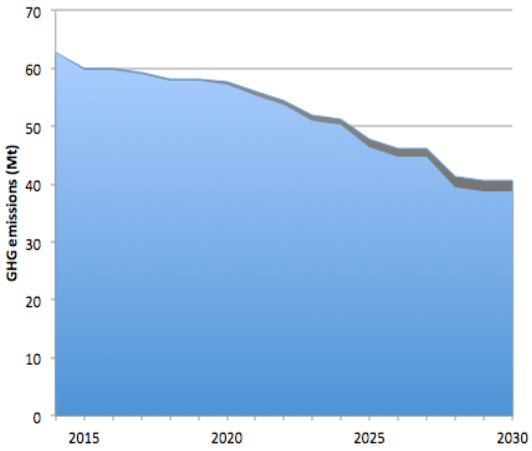
Implications of weakened regulations for Canadian coal emissions



CO_2 emissions with the draft regulations (blue) and a scenario with a 50-year end-of life and 425 t CO_2/GWh standard (grey).



CO_2 emissions with the draft regulations (blue) and a scenario with a 50-year end-of life and 375 t CO_2/GWh standard (grey).



CO_2 emissions with the draft regulations (blue) and a scenario with a 45-year end-of life and 425 t CO_2/GWh standard (grey).

[5] Environment Canada, *Regulatory Impact Analysis Statement,* Table 16.

[6] The following assumptions were used to derive these estimates: capacity factor (75%), emissions rate (1000 t CO_2/GWh). Moving from 40 to 45 years reduced the draft regulations' effectiveness by approximately 105 Mt over 2015-2030.

[7] New Brunswick's only coal plant will not reach 45 years of age until 2038.

[8] Nova Scotia has legislated hard emissions caps until 2020 which exceed the reductions listed above. Nova Scotia has negotiated a draft equivalency agreement with the Federal government, which could preserve the benefits of the draft regulations. The numbers in the table show a scenario where Nova Scotia only meets the requirements of the weakened final regulations when it extends its emissions cap to 2030, a requirement of the agreement.